FLINN SCIENTIFIC

Name_____

Observation and Experiment

Data Table A. The Overall Reaction

What are the physical properties of the individual substances?	
Chemical	**Observations**
Calcium Chloride	
Sodium Bicarbonate	
Phenol Red Solution	
What happens when the substances are mixed together?	
Observations	
What individual interactions are responsible for the observed changes?	
Questions	

Data Table B. Control Experiments

Number	Calcium Chloride	Sodium Bicarbonate	Phenol Red	Water	Observations
1					
2					
3					
4					
5					
6					
7					
8					
9					

Post-Lab Questions

1. Based on the results of the control experiments, what interaction among the substances seems to be responsible for the observed temperature change in the overall reaction?

2. Was there a temperature effect observed in any of the individual control experiments that was NOT observed in the overall reaction of the chemical substances? Explain.

3. What color change was observed in the overall reaction of the substances? Do the control experiments provide any evidence concerning the interaction(s) responsible for the observed color change?

4. Does the formation of gas bubbles occur independently of the observed temperature and color changes? Explain.

5. What control experiments were done to evaluate if a liquid is necessary for the observed effects in Part A? Does any reaction occur in the absence of water?

6. Is there any evidence that a new chemical substance is produced in the overall reaction of the three substances mixed in Part A? Explain. What interaction among the components must be responsible for the new substance?

7. Let's assume that the chemical identity of calcium chloride is not changed when it is mixed with water. Suggest an experiment that could be done to prove or disprove this hypothesis.

8. Temperature changes are sometimes used as evidence to indicate that a chemical reaction, which produces a new chemical substance, has occurred. Comment on the suitability of this observation as a "test" of a chemical reaction.